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AGS Division Technical Note
No. 179

Flag Video Profile Generator

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A digital video frame storage unit is now commercially available. This unit can store a video frame in a 256x256x8 digital format. The digitized picture is stored in random access memory that is TTL compatible. The unit will store a complete video frame consisting of two fields.

The video frame storage unit could be used at the AGS to store flag video. The stored flag video could then be accessed via computer control for analysis. Beam intensity profiles in both N-S and E-W planes could be generated from the stored video. Typical profiles generated from stored video (FEB flag) are shown in Figures 1 and 2. The black lines show the profile slice being taken. Since the stored video can be accessed randomly, a family of profiles can be generated from the stored picture with any spacing desired. Although only vertical slice profiles are shown in Figure 2 (due to lack of time at the manufacturer) many profile studies are possible, depending on software complexity, such as:

1. N-S profile, or series of profiles with n-bit spacing
2. E-W profile, or series of profiles with n-bit spacing
3. Intensity level cuts showing beam shape at different intensities
4. Three-dimensional profile of beam
5. Transferring profile into a hard storage (tape, Versetec, etc.) medium for comparison of day-to-day changes in beam shape
6. Beam shape analysis using other fluorescent media (such as gases) since long-term persistence is no longer necessary due to the ability to store a frame of video

Although, at this time, there is no data on beam intensity vs. light output for flags, light output linearity, stability with time; to allow quantitative beam analysis from flag video, the technique seems to allow better resolution than a SWIC.

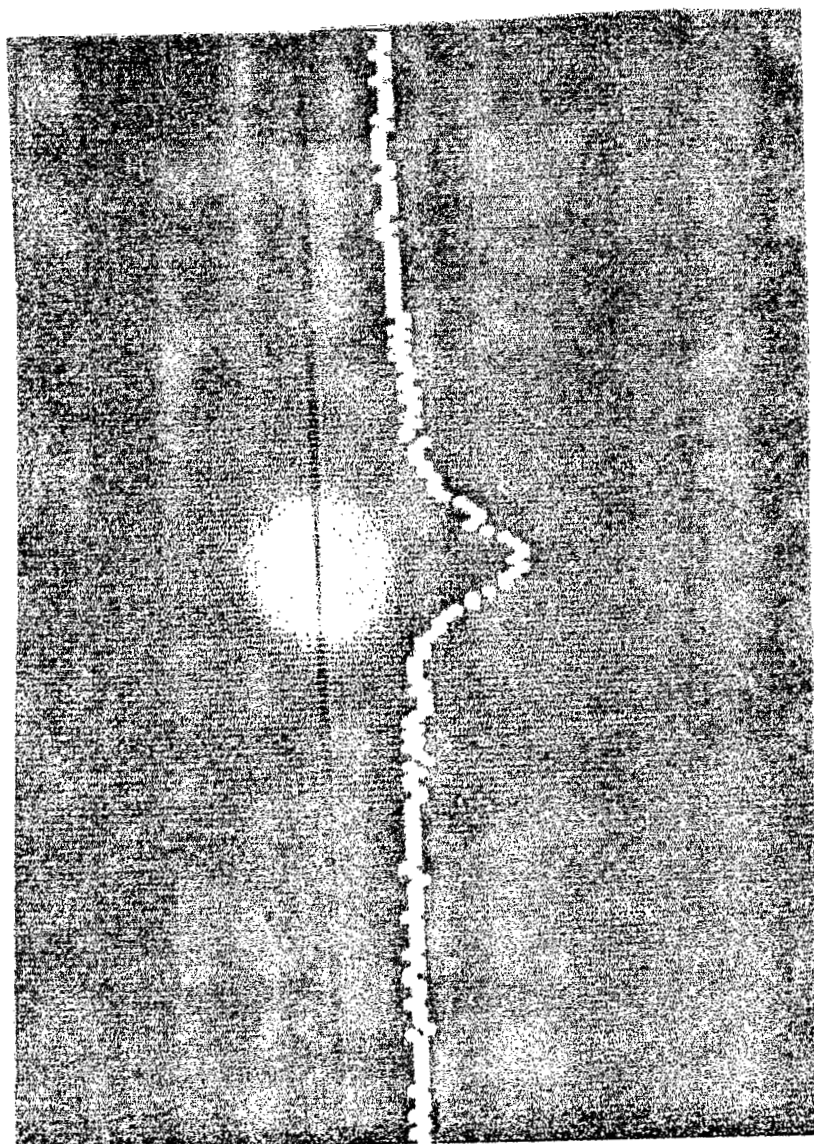
A video beam profiler offers certain advantages:

1. A single storage unit is required and the video from various sources can be switched to it as required
2. Beam profiling can be done where ever a flag is located without adding a SWIC package
3. Various profiles can be generated from a single stored frame by software control of the frame storage unit.

A video frame storage unit, 256x256x8 bit can be purchased for about \$8,000 (less than a SWIC package). AGS personnel will have to develop the software program for generating profiles using a HP9835 (or equivalent) desktop computer.

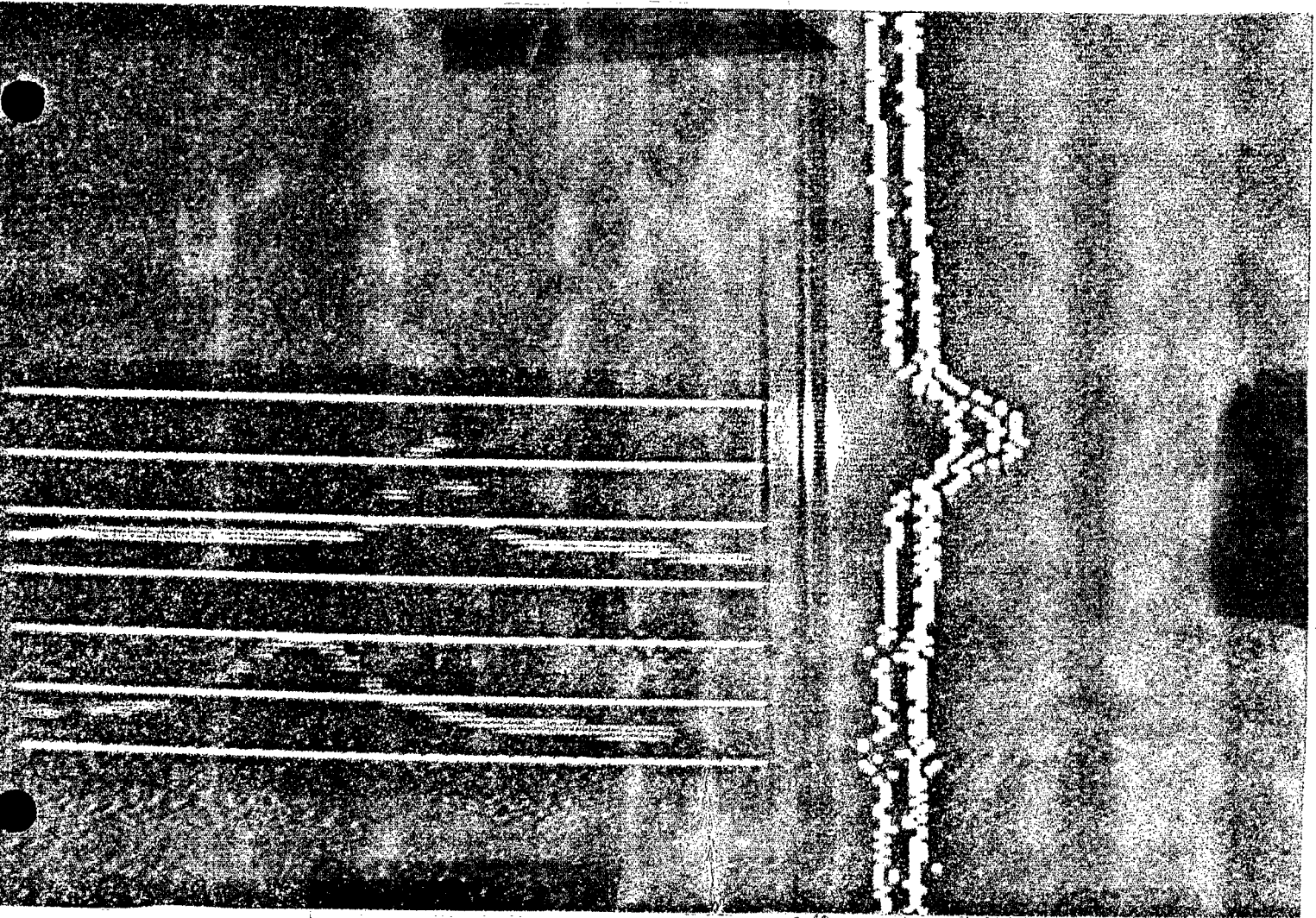
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CURSOR ↑
↑ AMPLITUDE
PROFILE
AT CURSOR

FIGURE 1
SINGLE PROFILE - STORED VIDEO



SWIC DISPLAY

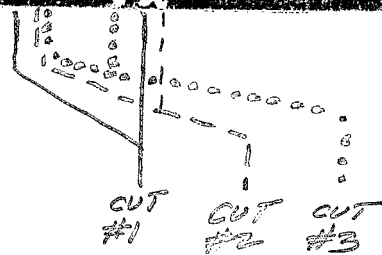


FIGURE 2
MULTIPLE PROFILES
STORED VIDEO